

INTERNATIONAL ECONOMIC POLICY

112

HEARINGS

BEFORE THE

SUBCOMMITTEE ON INTERNATIONAL TRADE

OF THE

COMMITTEE ON BANKING AND CURRENCY

HOUSE OF REPRESENTATIVES

NINETY-THIRD CONGRESS

SECOND SESSION

ON

H. Res. 774

RESOLUTION DECLARING THE SENSE OF THE HOUSE WITH RESPECT
TO A PROHIBITION OF EXTENSION OF CREDIT BY THE EXPORT-IMPORT
BANK OF THE UNITED STATES

H.R. 13838

A BILL TO AMEND THE EXPORT-IMPORT BANK ACT OF 1945, AS
AMENDED, TO EXTEND FOR FOUR YEARS THE PERIOD WITHIN WHICH
THE BANK IS AUTHORIZED TO EXERCISE ITS FUNCTIONS, TO INCREASE
THE BANK'S LOAN, GUARANTEE, AND INSURANCE AUTHORITY, TO
CLARIFY ITS AUTHORITY TO MAINTAIN FRACTIONAL RESERVES FOR
INSURANCE AND GUARANTEES, AND TO AMEND THE NATIONAL BANK
ACT TO EXCLUDE FROM THE LIMITATIONS ON OUTSTANDING INDEBT-
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LATION OF EXPORTS

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Another factor in the Soviet picture is that they have, primarily, imported foreign technology for domestic purposes rather than for exports which would have to be internationally competitive. Thus, once the new technology was in place, there was no pressure on those using it to keep it up to changing foreign levels and the technology languished. An important element then in analyzing the current situation is the extent to which foreign companies have buy-back arrangements with the Soviets in which the foreign company agrees to buy-back a share of output produced with the new technology and it markets the output in the West.

The technology transfer process is not a simple process. While it is true that the Soviets can import contemporary technology embodied in foreign capital equipment, it is not clear that they can operate this technology in the same way that is operated abroad, nor is it clear that they can master the process of technology creation and renewal.

V. U.S. INTERESTS

Though I am skeptical about the future mastery of technology by the Soviets, it is clear that in the short-run they stand to gain a great deal from expanded economic relations with the U.S. It is not so clear what we as a nation stand to gain. It would be nice to fall back on the market mechanism and say if it is privately profitable, it is socially desirable. But, unfortunately, this is not necessarily true, (as Marx might have said) "what is good for Occidental Petroleum is not necessarily good for the country."

What the U.S. stands to gain is debatable. Even the planned tripling of trade volume to \$500 million or even one billion per year, it is argued, will only be on the order of one percent of its total trade—approximately the level of U.S. trade with Spain and Switzerland. This can hardly have a significant effect.

To put the matter briefly, though, I think it is in our interests for economic and political reasons to pursue expanded economic relations with the Soviets.

First of all, the expectation is that the U.S. will have a substantial favorable balance in expected trade, and at the margin this will help our balance of payments.

Second, even though we may not be getting goods we need from the Soviets, American businessmen will be making hard currency earnings which can be used, in normal economic channels, to purchase the goods and services we do need.

Third, it is possible that we could in the longer run gain significant additions to our energy supplies from joint development of Soviet resources.

Finally, there are the political issues and the issue of detente. While normalization of relations and increased economic relations do not guarantee peace between nations (history clearly demonstrates this), it can be argued that they increase the chances of peace.

This is perhaps especially true when an essential element of the economic relations involves international transfer of technology. The process of international transfer of technology is a people process. It will not be sufficient for the Russians to buy blueprints, machines or even turnkey plants. They will also have to import people who are familiar with the advanced processes and who can help guide its implantation.

Increased human contacts between Russian economic decision makers and engineers, and U.S. business men and technologists can contribute toward decreasing tension between the two countries; they might also make a modest contribution toward the opening up of Soviet society.

The Soviet desire for expanded economic relations within an atmosphere of detente, makes possible a certain increase in our political bargaining strength vis-a-vis the Soviets. In the heat of the Mid-East crisis, this may not have been readily apparent. But in time, I think it will become agreed that Soviet behavior in this crisis was to some extent moderate.

In our economic relations with the Soviets we should be hard bargainers, we should pursue our own interests in economic issues and political ones. But the commitment to detente should be preserved. It is in the interest of us all that this be done.

Mr. ASHLEY. Thank you, Dr. Levine.

Our next witness is Antony C. Sutton, former research fellow at the Hoover Institute on War, Revolution, and Peace at Stanford Uni-

versity. Mr. Sutton has authored several books dealing with Western technology and the Soviet economic development. The record will include a bibliography of his published works that are indicated in appendix A to his prepared statement.

If you will proceed, Mr. Sutton.

**STATEMENT OF ANTONY C. SUTTON, FORMER RESEARCH FELLOW,
HOOVER INSTITUTION ON WAR, REVOLUTION, AND PEACE,
STANFORD UNIVERSITY**

Mr. SUTTON. My name is Antony C. Sutton. Until late last year, I was a research fellow at the Hoover Institution at Stanford University.

My field of research since the late 1950's has been the impact of Western technology on Soviet industrial and military development. My findings have been published in four books and several articles. The major publication is a three-volume series published by the Hoover Institution entitled "Western Technology and Soviet Economic Development." Volume 1 of this series covers the period 1917 to 1930; volume 2 covers the period 1930 to 1945; and volume 3 covers the period 1945 to 1965. These studies are a precise technical examination of Soviet industry and trace the origin of the technologies used. I will refer to them as volumes 1, 2, and 3.

I also have another book published last October by Arlington House in New York, entitled "National Suicide: Military Aid to the Soviet Union." This book details the transfers of our military and military related technology to the Soviet Union from 1918 down to the present day.

I also have related articles in, for example, the U.S. Naval Institute Proceedings on the origin of the Soviet merchant marine and its marine diesel engines.

The method used in this research was to examine each major process or technology and determine its origins. Most of my information came directly or indirectly from Soviet sources. Relevant information from U.S. sources is very difficult to obtain and is largely classified. I think this is something of a paradox.

My full statement to the subcommittee—I am summarizing here—gives details of four industrial sectors where I have done considerable work and which have military applications.

First, if I may summarize, Soviet merchant marine technology mostly originates in the West. For example, I identified 44 types of Soviet marine diesel engines, and in every case except two, I was able to make a positive identification of the Western origin. The other two are open; I just could not make the identification. They may be Soviet; they may be Western; I do not know. Generally, about 68 percent of Soviet merchant ships have been built completely in the West; that is engine plus the hull. About 80 percent of the main diesel engines in Soviet ships have been built in the West. The remaining 20 percent have been built in the Soviet Union with Western technical assistance and Western design. Merchant ships are, of course, used for military purposes, such as the supply to North Vietnam and the supply of weapons to the Middle East.

In computers, I can identify no significant Soviet indigenous computer technology. This conclusion is confirmed by Professor Judy at the University of Toronto and Professor Reiter at the Israel Institution for Technology.

My third example is ball bearings technology. It is absolutely essential for weapons systems and originates in the West. The Soviet ability to miniaturize its missile equipment required miniature ball bearings. The equipment to enable mass production of these precision bearings came from the United States. A congressional subcommittee just a decade ago termed the export of these machines to be a "life or death matter for America." However, the Nixon administration has allowed the equipment to go forward.

In military trucks—this is my fourth example—I have identified Western construction of Soviet plants producing military models. I can tie this right down to the precise military model involved. At the moment, U.S. firms are building in the Soviet Union the world's largest plant for 10-ton trucks that will produce about 100,000 trucks a year. The administration has stated that this plant does have a military end use.

Now, the conclusions from these studies—I could go on, of course, for weeks citing the empirical data which are in the four volumes—the conclusions from these studies are very roughly as follows.

First, the Soviet military-industrial complex is dependent on technology transferred from the West and mainly from the United States.

Second, I can make no distinction between civilian and military technology, because all transferred technology has some military impact. Therefore, the term "peaceful trade" in regard to Soviet trade is grossly misleading and should be abandoned. The crux of the problem at issue is technical transfers through the medium of Soviet trade and the use of these technical transfers for military purposes.

Consequently, as I see it, our discussion of Soviet trade suffers from several major weaknesses. We have too many platitudes from businessmen who are in search of Soviet orders, and we have a great deal of testimony, I regret to say, from officials in the executive branch who have not done their homework.

There is an intellectual problem here, the failure to come to grips with the gut issues involved. The root of the question, as I see it, is technical transfers for military purposes.

Another problem we have is that our discussion is in terms of individual sales, current sales, without considering the longrun, cumulative historical aspect. It is very easy to make an argument that any single sale has a minimal effect on Soviet technical ability. But what is important is the sum of all sales to the Soviet Union over the period 1917 to 1974. It is that total structure, not individual sales, which is vital.

Another essential point is that all weapons systems require inputs from the industrial sector, whether it be steel or nonferrous metals, fasteners, castings, or whatever. The specifications differ, but the inputs are produced on the same machines and equipment whether they are going into the civilian sector or the military sector. Therefore, any industrial technology can be used for either peaceful or military purposes. It depends on the intent of the recipient.

I would judge Soviet intent in two ways: One, by their external actions, and second, by their internal affairs. My personal judgment is that we can have no lasting peace in this world without genuine intellectual freedom. The Soviets have made it quite clear they do not intend to allow intellectual freedom within the Soviet Union. There are thousands of Russians in labor camps whose only crime is expression of an opinion. We cannot, as Mr. Kissinger suggests, ignore internal repression within the Soviet Union.

I would remind you that there were many Europeans in the early 1930's who said the same thing about Hitler and transfers of technology. To close one's eyes to persecution does not make persecution go away.

That, essentially, is the summary of my testimony, Mr. Chairman. I would add one thing, that as a result of my publishing this type of information, and specifically "National Suicide: Military Aid to the Soviet Union," I was removed from my position at the Hoover Institution last year.

The Hoover Institution at Stanford University is supposedly a private research center devoted to the pursuit of truth and freedom of inquiry. Its harassment of my efforts to publish information on Soviet technology are inconsistent with academic freedom and the first amendment to the Constitution.

I wish to place on public record that I consider the actions of the Hoover Institution reminiscent of Hitler's book burning and the decades long persecution of Russian intellectuals. These actions should be a warning to us because mine is not the only such case. Others who have protested our military assistance to the Soviet Union have been intimidated and fired from their jobs. I would respectfully urge that the Congress investigate these matters.

I am open for any questions you might have.

[The prepared statement of Mr. Sutton follows:]

PREPARED STATEMENT OF ANTONY C. SUTTON, FORMER RESEARCH FELLOW, HOOVER INSTITUTION ON WAR, REVOLUTION, AND PEACE, STANFORD UNIVERSITY

INTRODUCTION

In the late 1950s I began a study of the transfer of Western technology to the Soviet Union and the impact of this technological flow on the Soviet economy and the related military-industrial complex. The first book resulting from this investigation was completed in 1966 and published in November 1968 by the Hoover Institution at Stanford University under the title *Western Technology and Soviet Economic Development 1917 to 1930*. (See Appendix A for complete bibliography.)

The second volume of the series was completed in late 1968 and published by Hoover Institution in 1971 as *Western Technology and Soviet Economic Development 1930 to 1945*. Both books have been reviewed in academic journals throughout the world. (Reviews up to March 1973 are listed in Appendix B)

The third volume was completed in mid-1970, and published in November 1973, under the title *Western Technology and Soviet Economic Development 1945 to 1965*.

About 1968 I became concerned with our policy of technical assistance to the Soviet military-industrial complex, a policy denied by the State Department, and some Members of Congress. This technically subsidized Soviet economy was providing about 80 per cent of the supplies to North Vietnam and U.S. troops were being killed in Vietnam. Consequently, I made numerous attempts to bring the problem to public attention. These attempts may be summarized as follows:

(1) In 1969 I submitted written testimony to the Senate International Finance Sub Committee entitled 'Some aspects of Trade, Western technology and Soviet Military Capability'.

(2) Concurrently, I published articles in National Review, 'Are we in a Pavlovian Box?' and in Ordnance, 'Soviet Export Strategy'.

(3) I wrote two articles for the U.S. Naval Institute Proceedings detailing the Western origins of the Soviet merchant marine and emphasizing that this merchant fleet was used by the Soviets to carry armaments and supplies to North Vietnam to be used against U.S. and South Vietnamese forces. These articles were entitled 'The Soviet Merchant Marine' and 'The Western origins of Soviet Marine Diesel Engines'.

(4) In 1971 and 1972 I made efforts to get release of classified data from Department of Defense to write a two volume academic study of our military assistance to the Soviet Union, as a sequel to my three volume Stanford study.

(5) In 1971 I contracted with U.S. Naval Institute Press to write a book detailing the Western origins of the Soviet merchant marine.

(6) In August 1972 I attempted to brief the National Security Sub Committee VII at the Republican Convention on the problem. Several million copies of this testimony have been distributed but the only official recognition I received for that effort was an injunction not to make any more such speeches if I wanted to 'survive'.

In any event, none of these efforts on my part had any recognizable impact. Therefore in late 1972 I put together the information immediately at hand into a book: National Suicide: Military Aid to the Soviet Union, published by Arlington House in New York. Advance copies of the book became available last July and the book was published in October 1973.

National Suicide came to the attention of Hoover Institution about July 1973. I immediately—and I mean immediately—came under considerable criticism and hostility for publishing the book. My name was removed from the Hoover personnel directory and in August I was arbitrarily removed from my position as Research Fellow at the Hoover Institution. My hasty conversion into a non-person was so complete that the third volume of my Hoover series, which was then in press, had its dust jacket changed to read 'was a Research Fellow at the Hoover Institution from 1968 to 1973'.

In my estimate, reduction to the status of a non-person and associated harassment was retaliation for publishing a book embarrassing to this Administration and some of its friends in the business world. I wish to place on public record that this action—which is common for anyone who protests our military aid to the Soviet Union—parallels the police state tactics of Hitler's Germany and is a pitiful state of affairs to encounter at one of this country's great universities.

At the moment, I have an office at the Hoover Institution and I am receiving my monthly research grant, however I am not officially connected with the Institution, and past events will suggest to the Sub Committee that the Hoover Institution emphatically disassociates itself from my testimony.

SUMMARY OF THE RESEARCH FINDINGS

The problem I have been examining over the past fifteen years is the origin of Soviet technology: i.e., the design and construction of Soviet plants, the origin of Soviet innovations, Soviet technical progress and related problems. My methodology is empirical and technical. In other words, I take each Russian process, technology or type of equipment in turn and trace it back to its origins, whatever they may be. My initial assumption—and this is most important—is that any particular process is Soviet until I can prove it is not. I make this point because Mr. William C. Norris of Control Data Corporation has claimed that researchers (such as myself) are making 'assumptions'. It will be obvious as I develop my discussion that Mr. Norris is apparently unaware of the massive amount of research work that has been conducted on Soviet technology, and of his personal contribution to Soviet militarization.

The information for this research came from a wide variety of sources including:

(a) Declassified government files, particularly those of the State Department. Classification prohibits my using government data from about 1945 onwards.

(b) Soviet technical manuals and handbooks, particularly for the period 1945 to date. It is a paradox that the more recent work is far more dependent on

Soviet publications than on U.S. government data. I would refer the interested reader to the citations in the bibliography in *Western Technology and Soviet Economic Development, 1945 to 1965*.

In general, I find that almost all Soviet technology has originated in the West: this conclusion holds good from 1917 to 1974. There has been some Soviet innovation in recent years, but it is concentrated in a very few fields, for example, welding techniques, core molds and medical sutures. The examples prominently displayed in Western newspapers are 'one-off' items. The bulk of Soviet technology particularly sophisticated production equipment, originates somewhere in the West, although it may be modified or duplicated and copies are made inside the U.S.S.R. Let me emphasize that we are talking about innovation—which is application of invention to the industrial process.

The Soviets produce many *inventions* but these are not used in the industrial process. They also have done excellent work in pure science and I would cite the work on Vitamin B-15. In brief, my work concerns industrial and military innovations, *not* invention, and *not* pure science.

The reason for Soviet technical dependence appears to be that a centrally planned system cannot generate indigenous innovation. At least such a planned system cannot generate innovation that will compete with Western innovation from enterprise systems. The Russians are intelligent and capable people. It is the planned economic system that is their problem. My conclusions would probably apply to any planned system—including the United States if we continue to centralize economic decision making.

My published research is heavily factual. I have not yet, in the six years since publication of the first volume, received any indication of error in a material fact, and I append as Appendix B a list of the reviews (up to March 1973) of the first two volumes of the *Hoover* series.

The best way I can quickly summarize these findings, as well as the methodology, is to present data on a few representative sectors. The examples I have chosen also have military significance:

- (a) merchant ships
- (b) computers
- (c) ball bearings
- (d) military trucks

(a) Merchant ships

(References: Volume one: Chapter Fourteen. Volume two: Chapter Thirteen, Volume Three: Chapter Twenty-one. *National Suicide*: Chapter Nine. Two articles in U.S. Naval Institute Proceedings January 1970, 'Soviet Merchant Marine' and 'The Western Origins of Soviet Marine Diesel Engines')

The Soviet merchant marine has about 6,000 ships.

The only really complete source of data for these ships is the Soviet Register of Shipping. The following are some of the major findings based on an exhaustive analysis of this Register:

68 per cent of Soviet merchant ships were built in the West

80 per cent of diesel engines were built in the West

20 per cent of engines were built in the U.S.S.R. but under Western licensing

There is therefore no such thing as a Soviet designed marine diesel engine. Consequently, Soviet capability to supply North Vietnam, to supply Arab countries with armaments by sea, or to move into the Indian Ocean comes from the Western world, primarily from NATO allies of the United States.

A good example is Soviet supply of the North Vietnamese where Soviets used over 200 merchant ships. The Western origins of these vessels is listed in detail in *National Suicide*.

The Export Control Act of 1949 was supposed to restrict export of vessels with higher speed and tonnage from the West. Actually the faster and bigger Soviet ships on the Haiphong supply run were built in the West while the smaller and slower vessels were built in Russian yards. This could have been stopped, but State Department ruled that merchant ships were peaceful vessels and could not be used for war purposes. There is no question that if State Department had exercised its veto power in COCOM—according to the intent of Congress—the Soviets would not have been able to supply the Vietnamese War.

(b) *Computers*

(References: Volume One: Chapter Ten. Volume Two: Chapter Ten. Volume Three: Chapter Twenty-three. National Suicide: Chapters Five and Eleven).

Computers are essential to a modern society and modern weapons systems. Most importantly, a computer cannot distinguish between military and civilian problems. Any computer can handle either type of problem within its capability. Any talk about safeguards on computers to prevent unwanted military use is nonsense. There is no way to check, inspect or safeguard the use of a computer, unless you have your own people do everything from installation to day-to-day operations and that kind of inspection is patently absurd.

My research indicates that there is no Soviet indigenous computer technology. I should say that I cannot find any Soviet computer technology at all—but I have to leave a margin for error on my part. Up to about 1970 all Soviet computer technology that I can identify came from IBM, RCA or the British firm ICT Ltd. Control Data Corporation is also a prominent supplier at this time.

These conclusions on Soviet computers are fully confirmed by other researchers: Professor Judy at University of Toronto has concluded: 'Computer technology in the Soviet Union is virtually entirely imported from the West'. Judy does not identify any Soviet technology and presumably inserts the word 'virtually' to leave a margin for possible error. Last July, Professor Allen Reiter of the Israel Institution for Technology stated: 'The Russians know nothing about modern computer technology'.

In contrast, Mr. Norris of Control Data Corporation disputes these conclusions but so far has not provided data on 'Soviet' technology. To compare computer technology with Soviet theoretical expertise (as has Mr. Norris) is much like comparing apples with oranges.

It appears that the latest Soviet RJAD system is the IBM system 360. In any case Mr. Watson of IBM, and Mr. Norris or Mr. Henig of Control Data can provide the latest details. There is a major problem in this case. The latest data is always denied to private researchers. I have to wait until the Soviets publish it. I can't get it in the United States. The Department of Commerce data is classified, and American firms are unwilling to publish *exactly* what they are shipping. Their statements are limited to bland denials of military impact.

(c) *Ball bearings*

(References: Western Technology, Volume One: Chapter Ten, Volume Two: Chapter Nine, Volume Three: Chapter Twenty Two, National Suicide: pages 91-100.

Ball bearings are an integral part of most weapons systems; there is no substitute.

The entire ball bearing capacity of the Soviet Union is of Western origin, using equipment from the United States, Sweden, Germany and Italy or copies of previously imported equipment. I have given the full story of this transfer elsewhere (see above references); the following is a summary.

Before the Bolshevik Revolution the only ball bearing plant in Russia was that of A/B Svenska Kullagerfabriken (SKF) established in Moscow in 1915. This plant was nationalized in 1918 but continued in operation under its Swedish engineers. In 1921 *de facto* operation by SKF was formalized under a concession agreement. The original plant was then expanded and re-equipped with Swedish equipment, and the Soviets guaranteed a 15 per cent profit. Another ball bearing plant was built by SKF in the 1920s and operated under a joint Soviet-Swedish arrangement. Both these SKF plants were expropriated in 1930 and became Moscow Ball Bearing Plant No. 2, with an annual production of about eight million ball and roller bearings.

Under the First Five Year Plan the Kaganovitch Plant (Moscow, Plant No. 1) was built, with equipment from the United States and Germany and a technical assistance contract with the Italian firm RIV (Officine Villar-Perosa of Turin) RIV was a subsidiary of FIAT and partly American owned. The buildings for Ball Bearing Plant No. 1 were designed by Albert Kahn Inc of Detroit.

The Kaganovitch plant had a production of 18 million ball and roller bearings in 120 different sizes made to foreign specifications. For example, helical roller bearings were based on Ford, and bearings for tractors on International Harvester, specifications. The equipment for the Kaganovitch came from United

States, Italy, United Kingdom and Germany, combined with some copies of Western machines made in Soviet plants.

Later, another ball bearing plant was erected at Saratov (Ball Bearing Plant No 3) using imported U.S. equipment.

A few Western companies have been associated with this historical development of Soviet ball bearing capacity. Apart from SKF and RIV, the Bryant Chucking Grinder Company of Springfield, Vermont (now part of Ex Cello Corp) is prominent. In 1931 Bryant shipped 32 per cent of its output to the Soviet Union, and in 1932 over half its output. Then in 1938 Bryant shipped one quarter of its output to the U.S.S.R. followed by heavy shipments under Lend Lease.

In 1959 Congress intervened to prevent shipment of 45 Bryant Centalign-B machines to the U.S.S.R. This episode is worth describing, as it typifies the problem of the military character of so-called 'peaceful trade'.

In 1959 the Soviets required a capability for mass production, rather than laboratory or batch production, of miniature precision ball bearings for weapons systems. The only company in the world that could supply the required machine (the Centalign-B) for a key operation in processing the races for precision bearings was the Bryant Chucking Grinder Company. The Soviet Union has no relevant mass-production capability. Its miniature ball bearings in 1959 were either imported or made in small lots on Italian and other imported equipment. In 1960 there were sixty-six Centalign-B machines in the United States. Twenty five of these machines were operated by the Miniature Precision Bearing Company, Inc., the largest manufacturer of precision ball bearings, and 85 per cent of Miniature Precision's output went to military applications, predominantly missiles.

In 1960 the U.S.S.R. entered an order with Bryant Chucking for forty five similar machines. Bryant consulted the Department of Commerce, the department indicated its willingness to grant a license and Bryant accepted the order although the military end use was known to Bryant and Commerce Department.

In 1961 a Senate sub committee investigated this license. Its final report stated in part:

"The Senate Sub Committee on Internal Security has undertaken its investigation of this matter not in any desire to find scapegoats, but because we felt that the larger issue involved in the Bryant case was, potentially, of life-or-death importance to America and the free world. We are now convinced, for reasons that are set forth below, that the decision to grant the license was a grave error."

The Centalign-B machines were not shipped in 1962.

In 1972, just before the presidential election, Nicholaas Leyds, general manager of the Bryant Chucking Grinder Company announced a contract with the Soviets for 164 grinding machines. Anatoliy I. Koustousov, Minister of the Machine Tool Industry in the Soviet Union, then stated they had waited twelve years for these machines, which included mostly the banned models, and stated:

"We are using more and more instruments of all kinds and our needs for bearings for these instruments is very great. In all, we need to manufacture five times more bearings than 12 years ago."

My understanding is that the Soviets have recently expanded their missile capability particularly their ability to miniaturize instruments. The relationship between export of the Bryant machines, previously noted as of 'life or death importance to America' and this Soviet expansion should be investigated.

(d) Military trucks

(References: Western Technology, Volume One: Chapter Fourteen, Volume Two: Chapter Eleven, Volume Three: Chapters Sixteen and Seventeen, National Suicide: Chapter Seven)

The greater part of Soviet military truck production except some specialized vehicles originates in two key production units: the Gorki plant and the ZIL plant with their subsidiary assembly and production units. These units produce civilian and military vehicles and about 65 per cent or so of the parts are interchangeable between the military and civilian units. Of course any civilian truck can also be used for military purposes.

The Gorki plant was built from scratch by Henry Ford in the early 1930s and has had foreign equipment continuously throughout the decades down to the present. Gorki produces the GAZ range of military vehicles including missile carriers, patrol vehicles, jeeps and tow vehicles. The ZIL plant is the former Tsarist AMO plant considerably rebuilt and expanded over the years. It was

first rebuilt in the early 1930s by A. J. Brandt of Detroit with equipment from Hamilton Foundry and Budd Company. The last production equipment I traced from the U.S. to the ZIL plant was in 1970 in the middle of the Vietnamese War. The ZIL plant and its assembly plants in the same group produce military trucks and chassis for rocket launchers, personnel carriers and so on. The details are in my books.

Under the Nixon Administration U.S. firms are building the Kama truck plant. This will be the largest producer of ten ton trucks in the world—100,000 per year: more than all U.S. manufacturers put together. The Administration is aware that the Kama plant has military potential.

CONCLUSIONS

(1) The Soviet military-industrial complex is dependent on technology transferred from the West, mainly the United States. No distinction can be made between civilian and military technology and all transferred technology has some military impact.

The term "peaceful trade" in regard to Soviet trade is grossly misleading and should be abandoned. The crux of the question at issue is technical transfers through the medium of trade and the use of such technical transfers for military production.

(2) Our discussion of Soviet trade suffers from several major weaknesses. We receive too many bland platitudes from businessmen in search of Soviet orders or from officials in the executive branch who have not done their homework. There is an intellectual problem: failure to come to grips with the gut issues involved. Unfortunately Congress has been slow to challenge these unsupported statements and assertions about trade, détente and world peace. The root of the question is technical transfers for military purposes and therefore the discussion should only concern the facts of technical transfers, conducted in technical terms and assessed in terms of the impact on weapons systems. "Trade leads to peace" and similar unsupportable clichés are irrelevant.

A great deal of testimony has been received by various Congressional committees from businessmen, but businessmen have a short time horizon, they are interested in near term orders. Further, successful businessmen are not necessarily logicians; in fact businessmen do not use the process of reason in making their arguments, they use an intuitive process; and business success is largely measured in not being publically found at fault. This is quite different to the logical processes that *should* construct foreign policy.

Another problem in discussion of Soviet trade stems from the concentration on *current* individual sales without considering the long run cumulative historical effects of *all* sales. It is easy to construct an argument that any single sale has a minimal effect on Soviet technical ability, it is done all the time. But the *sum* of all sales to the Soviet Union over the years 1917 to 1974 is the Soviet technical structure. Many of those who stress single sales have attended college economic courses and have presumably heard of the rule "the sum of the margins is the total", and yet this rule has never been applied to Soviet trade. In brief, the sum of all transfers of technology to the Soviet Union is the present technical structure. Therefore it is *the total structure*, not individual sales, that should concern us.

(3) A question can be raised concerning the difference between industrial and military innovation, i.e. if the Soviets can design weapons systems, then why can they not also design industrial systems? The Soviets do have an ability to design weapons systems, but they do not have an ability to generate industrial innovation. Further they cannot achieve the ability to generate internal innovation on a significant scale until they adopt a market system and abandon central planning, which by the way would also be an excellent indicator of a change in totalitarian attitudes, and acceptance of detente, as we understand the term.

Entirely different factors are at work. In weapons design the military adopts a specification for a required weapon and sets up a cost framework. The job of the designers is to design a weapon within a given technical and cost framework. The weapon is tested by determining if it fulfills the desired criteria. Industrial innovation is quite a different process. In any industrial advance there are always alternative methods. The market place sorts out the most effective way in terms of cost and technical efficiency. In other words, you cannot have effective industrial innovation without a market place. There is a market system

in the U.S. but not in the Soviet Union. The Soviets have been able to avoid the cost of this deficiency by importing Western technology.

The essential point for our argument is that all weapons systems require inputs from the industrial sector i.e. steel, non ferrous metals, castings and so on. The specifications differ but these inputs are produced on the same machines and equipment as "civilian" goods. Therefore almost any industrial technology can be used for either peaceful or military purposes. Its use depends on the intent of the recipient.

(4) I would judge Soviet intent in two ways: by their internal affairs and by demonstrated actions toward the outside world.

First, there can be no lasting peace in this world without genuine intellectual freedom. The Soviets have made it clear by word and deed that they do not intend to allow intellectual freedom within the Soviet Union. There are thousands of Russians in labor camps and mental asylums whose only 'crime' is expression of an opinion. We cannot, as Mr. Kissinger suggests, ignore internal repression inside the Soviet Union. There were Americans in the early 1930s who wanted to ignore Hitler's concentration camps and we paid a heavy price. To close ones eyes to persecution does not make persecution go away. The lessons of Soviet prisons are:

- (a) they reflect a brutal totalitarian regime and we have no business subsidizing any such regime, fascist or communist,
- (b) they reflect hostile intent, because if the Soviets ill treat Russians they can ill treat Americans.
- (c) if we ignore repression in the Soviet Union it's not going to be long before repression comes to the United States, and unfortunately there already appears to be a similar pattern developing.

RECOMMENDATIONS

1. That the Congress should investigate the question of our military aid to the Soviet Union and place its conclusion before the public.

2. That the Freedom of Information Act should be amended to provide for declassification of foreign policy documents within five years, as well as publication of monthly data on exports to the Soviet Union including technical specifications, name of manufacturer, and a declaration by the Department of Commerce that the sale is not capable of generating military assistance to the Soviet Union.

3. That an embargo be placed on high technology items, (for example, computers, transfer lines, ball bearing and numerical control equipment) until such time as the question of military aid to the Soviet Union has been examined by Congress.

4. That sales to the Soviet Union should not be financed with taxpayers funds, or guaranteed by the U.S. government. If firms wish to make such sales they should take the risk themselves, not shift it onto the American taxpayer.

5. That the Congress should investigate harassment by business firms and other organizations of individuals who exercise their constitutional right to protest, or comment on, Soviet trade.

APPENDIX A : BIBLIOGRAPHY OF PUBLISHED WORKS BY ANTONY C. SUTTON

BOOKS

Western Technology and Soviet Economic Development, 1917 to 1930, (Vol. I) (Stanford : Hoover Institution, 1968).

Western Technology and Soviet Economic Development, 1930 to 1945, (Vol. II), (Stanford : Hoover Institution, 1971).

Western Technology and Soviet Economic Development, 1945 to 1965, (Vol. III), (Stanford : Hoover Institution, 1973).

National Suicide: Military Aid to the Soviet Union, (New York : Arlington House, 1973).

Wars and Revolutions: a comprehensive list of conflicts, with fatalities, (Part I, 1820-1900), (Stanford : Hoover Institution, 1971).

Wars and Revolutions: a comprehensive list of conflicts, with fatalities, (Part II, 1900-1973), (Stanford : Hoover Institution, 1973).

ARTICLES

"A Location Analysis of the Iron and Steel Industry in Columbia," *UCLA Business Journal*, Fall 1960.

"Are we in a Pavlovian Box?" *National Review*, July 1969.

"Soviet Export Strategy", *Ordnance*, Nov-Dec 1969.

"Some Aspects of Trade, Western Technology and Soviet Military Capability," in *Export Expansion and Regulation*: Hearings before the Subcommittee on International Finance of the Committee on Banking and Currency, United States Senate, Ninety-first Congress, 1st Session, 1969.

"Soviet Merchant Marine," U.S. Naval Institute, *Proceedings*, January 1970.

"The Western Origins of Soviet Marine Diesel Engines," U.S. Naval Institute, *Proceedings*, January 1970.

"The Soviet Military-Industrial Complex" *Human Events*, September 9, 1972.

"It's time for Great Debate on U.S.-Soviet Trade," *Human Events*, August 18, 1973.

"Western Technology in the Soviet Union: A Summation," *Washington and Lee Commerce Review*, Winter 1973.

APPENDIX B: REVIEWS OF WESTERN TECHNOLOGY AND SOVIET ECONOMIC DEVELOPMENT, VOLUMES ONE AND TWO. (UP TO MARCH 1973 ONLY)

Foreign Affairs, April 1969 and October 1971.

Economic Abstracts, June 15, 1969.

Orbis, Winter, 1969 and Summer 1971.

Christian Economics, September 2, 1969 and November, 1971.

The Annals of the American Academy of Political and Social Science, September, 1969.

Economisch en Sociaal Tijdschrift, October 17, 1969.

America's Future, December 12, 1969.

Journal of Economic History, December 1969.

Tijdschrift Uedor Economie, No. 4, 1969.

Osteuropa, December 1969.

Journal of Developing Areas, 1969.

The Russian Review, January 1970.

The Objectivist, January 1970.

International Review of Social History, January 1970.

Barrons, February 9, 1970 (front Page lead article).

The Review of the News, Volume VI, No. 10, March 11, 1970.

The Engineering Economist, April 13, 1970.

Journal of Economic Literature, April 1970.

Arizona Republic, April 28, 1970.

International Affairs, April 1970.

The Hermes Exchange, New York (Columbia University), April 1970.

Slavic Review, June 1970 and December 1972.

The Slavonic & East European Review, January 1971.

Chronique de Politique Etranger, Paris, France, March 1971 and November 1972.

Economic Journal, June 1971.

American Opinion, September 1971.

Industry Week, September 13, 1971 (interview).

Air Force Magazine, October 1971.

Recherches economiques de Louvain, Louvain, Belgium, 1971.

Historische Zeitschrift, Munich, Germany, 1971.

Revue d'Histoire Moderne et Contemporaine, Paris, France, 1971.

Ordnance, Jan-Feb, 1972.

Historisch-Politische Buch, March 1972.

International Affairs, London, April 1972.

Canadian Journal of History, April 1972.

The Economic Record, June 1972.

American Mercury, Spring 1972.

Book News (Academic Associates, No. 8, Spring 1972).

Journal of Modern History, December 1972.

Deutsche Historisch-Politische Buch XX/2 1972.

Technology and Culture, January 1973.

Books for Libertarians, February, 1973.

American Historical Review, February, 1973.

Journal of Political Economy, March 1973.

Jahrbucher f. Geschichte Osteuropas, Vol. 20, No. 2.

Archiv fur Sozial geschichte, Vol. XIII, pp. 778-80.

Mr. ASHLEY. Thank you very much, Mr. Sutton.

Our next witness is Dr. Franklyn D. Holzman, professor of economics at Tufts University. Dr. Holzman has published several works on the Soviet economy and its international economic relations. He has been a consultant to the President's Commission on International Trade and Investment Policy and the United Nations, and from 1964 to the present, to the U.S. Arms Control and Disarmament Agency.

Dr. Holzman, we are pleased to have you with us. Please proceed.

STATEMENT OF DR. FRANKLYN D. HOLZMAN, PROFESSOR OF ECONOMICS, TUFTS UNIVERSITY

Dr. HOLZMAN. Thank you, Mr. Chairman.

I am very pleased to have the opportunity to express my views here.

Three years ago, I presented a paper and testimony before President Nixon's Williams Commission regarding our foreign trade and credit policies toward the Soviet bloc. While these policies have been liberalized over the past 3 years, I feel that liberalization could have gone much further. If it seems appropriate, the relevant portions, parts III and IV, of the Williams Commission paper can be introduced into the record of these hearings. (See page 169.) I will confine myself here to summarizing briefly the views expressed in that paper, concluding with some comment on issues not covered there.

There have been, in my opinion, five fundamental flaws in the strategy behind our commodity and credit controls over exports to the Soviet bloc nations since 1955. First, our policy of trying to weaken a nation by denying it commodities and technology makes sense as a shortrun strategy, if one foresees a war in the immediate future.

On the other hand, such a policy is counterproductive over the long run if there is no immediate danger of war, which has been the case with the U.S.S.R. over the past two decades and I hope continues to be so. This is so because denial forces the potential enemy to remedy its deficiencies and become self-sufficient and independent. The sensible long run policy toward a potential enemy is to sell him whatever he needs, with certain obvious exceptions, of course, thereby making him as dependent on you as possible. It is this very same type of reasoning in reverse which has led many in this country to oppose large U.S. investments in the U.S.S.R. in petroleum and natural gas despite their possible advantages to us in the absence of conflict.

Second, over the long run, the distinction between strategic and nonstrategic exports becomes "inoperative." On this point, I can do no better than quote a statement of Thomas Schelling of Harvard University before the Senate Foreign Relations Committee in 1964:

Wheat shipments may have the same effect on military programs as jet engine sales. Wheat shipments may permit the Soviets to keep chemical indus-